

**CLAIMS**

1. An apparatus (10) for sealing a package (20) having an open end (20a), the apparatus comprising at least one pair of halves (190, 200), which are reciprocally movable between an open position and a closed sealing position for sealingly closing the open end (20a) of the package (20),

characterized in that the apparatus (10) further comprises forming means comprising a pair of forming flaps (133), each forming flap (133) being associated with a sealing half (190, 200) and pivotally attached at a first end (133a) to a support such that a second end (133b) of each forming flap (133) is adapted to at least partly follow the reciprocal movement of the associated sealing half (190, 200), and

in that the forming flaps (133) during the movement of the sealing halves (190, 200) towards the closed sealing position press two opposing portions of the package (20) towards each other.

2. An apparatus (10) according to claim 1, wherein each of the forming flaps (133) is adapted to be pivoted from a first essentially vertical position to a second angled position in which the second end (133b) is in contact with a portion adjacent the open end (20a) of each package (20).

3. An apparatus (10) according to claim 2, wherein each of the forming flaps (133) is biased, such that it is kept in its first essentially vertical position when the sealing halves (190, 200) are in their open position.

4. An apparatus (10) according to claim 1, wherein the apparatus (10) comprises at least three pairs of linkage arrangements including a first pair of linkage arrangements (120) with two reciprocally movable halves (150, 160) provided with pressing means (121) for pressing on opposing portions of the package (20) at a distance from the open end (20a) thereof, a second pair of linkage arrangements (130) with two reciprocally movable halves (170, 180) provided with forming means (131) for forming each package (20) adjacent the open end (20a) thereof, and a third pair of linkage arrangements (140) with two reciprocally movable halves (190, 200) provided with sealing means (141) for closing and sealing the open end (20a) of each package (20).

5. An apparatus (10) according to claim 4, wherein each of the forming flaps (133) is attached at its first end (133a) to one end of each half (170,

180) of the second pair of linkage arrangements (130) between the third pair of linkage arrangements (140) and the second pair of linkage arrangements (130).

5           6. An apparatus (10) according to claim 3, wherein each of the forming flaps (133) is biased by means of a spring (139), which is operatively connected to the first end (133a) of each of the forming flaps (133).

10           7. An apparatus (10) according to claim 5, wherein each of the forming flaps (133) is attached at its first end (133a) to an upper side of each half (170, 180) of the second pair of linkage arrangements (130).

15           8. An apparatus (10) according to claim 1, wherein each of the forming flaps (133) is generally T-shaped and oriented such that the second end (133b) of the flap (133) forms the overhead horizontal leg of the T.

20           9. An apparatus (10) according to claim 4, wherein the three pairs of linkage arrangements (120, 130, 140) for sealingly closing the open end (20a) of each package (20) are vertically spaced apart, so that the movable halves (150, 160, 170, 180, 190, 200) of the linkage arrangements (120, 130, 140) are freely movable in relation to each other during sealing and closing of each package (20).

25           10. An apparatus (10) according to claim 9, wherein the third pair of linkage arrangements (140) with two halves (190, 200) provided with sealing means for sealingly closing the open end (20a) of each package (20) is placed at a vertical distance from each half (170, 180) of the second pair of linkage arrangements (130), which vertical distance is adapted so that the flap (133) is pivoted by the two halves (190, 200) of the third pair of linkage  
30           arrangements (140) from its first essentially vertical position to its second angled position for pressing two opposing portions of the package (20) towards each other.

35           11. An apparatus (10) according to claim 4, wherein the first pair of linkage arrangements (120) is connected to a first carrier (240) movably provided on a guide (230),

the second pair of linkage arrangements (130) is connected to a second carrier (250) movably provided on said guide (230),

the third pair of linkage arrangements (140) is connected to a third carrier (260) movably provided on said guide (230), and the carriers (240, 250, 260) are connected to a cam curve disc (220).

12. An apparatus (10) according to claim 11, wherein each half of the first pair of linkage arrangements (120) comprises an arm (123) which in a first end (123a) is provided with the pressing means (121) for pressing on a portion of the package (20) at a distance from the open end (20a) thereof and which in a second end (123b) is pivotably connected to the first carrier (240) by a link (241), and which between the first and second ends (123a, 123b) is provided with a fixed pivot point (123c).

13. An apparatus (10) according to claim 11, wherein each half of the second pair of linkage arrangements (130) comprises a first and a second arm (134, 135),

which first and second arms (134, 135) being connected to each other in first ends (134a, 135a) thereof and provided with the forming means (131) for forming each package (20) adjacent the open end (20a) thereof,

which first arm (134) in a second end (134b) is pivotably connected to the second carrier (250) by a link (251) and which between the first and second ends (134a, 134b) is provided with a fixed pivot point (134c), and

which second arm (135) in a second end (135b) is fixed and which in between the first and second ends (135a, 135b) is provided with a fixed pivot point (135c).

14. An apparatus (10) according to claim 11, wherein each half of the third pair of linkage arrangements (140) comprises an arm (143) which in a first end (143a) is provided with the sealing means (141) for closing and sealing the open end (20a) of each package (20) and which in a second end (143b) is pivotably connected to the third carrier (260) by a link (261), and which between the first and second ends (143a, 143b) is provided with a fixed pivot point (143c).

15. An apparatus (10) according to claim 11, wherein the third carrier (260) is connected to the cam curve disc (220) via a fourth carrier (270).

16. An apparatus (10) according to claim 15, wherein the fourth carrier (270) is connected to the third carrier (260) via an actuation member (272), which actuation member (272) is adapted to change the mutual distance  
5 between the third and fourth carriers (260, 270) along the guide (230) for biasing the sealing means (141) for closing and sealing the open end (20a) of each package (20).

17. An apparatus (10) according to claim 13, wherein the fixed pivot  
10 point (134c) of the first arm (134) is arranged substantially at the same distance from the forming means (131) in a vertical direction as the fixed second end (135b) of the second arm (135), so that the pivotable portion of the first arm (134) is longer than the pivotable portion of the second arm (135).

18. An apparatus (10) according to claim 14, wherein the fixed pivot  
15 point (123c) of the arm (123) of each half of the first linkage arrangements (120) and the fixed pivot point (143c) of the arm of each half of the third linkage arrangements (140) are arranged substantially at the fixed pivot point (134c) of the first arm (134) and the fixed second end (135b) of the second arm (135) of each half of the second linkage arrangements (130) in the vertical direction.

19. A method for sealing a package (20), which method uses the  
25 apparatus (10) according to claim 1,  
c h a r a c t e r i z e d by the steps of:  
providing the apparatus (10) with forming means (131) comprising a pair of forming flaps (133),  
setting the apparatus (10) in a first open package-receiving position,  
30 supplying a package (20) to the apparatus (10),  
associating each forming flap (133) with a sealing half of at least one pair of reciprocally movable sealing halves (190, 200),  
moving the at least one pair of reciprocally movable sealing halves (190, 200) of the apparatus (10) towards and into contact with the package  
35 (20),

pressing two opposing portions of the package (20) towards each other by means of the pair of forming flaps (133) during the movement of the at least one pair of reciprocally movable sealing halves (190, 200),

5        biasing the at least one pair of sealing halves (190, 200) further by pressing against opposing portions (20a) of the package (20), thereby folding the opposing portions (20a) of the package (20), and sealing the package by supplying energy to the at least one pair of reciprocally movable sealing halves (190, 200).

10        20. A method for sealing a package (19) according to claim 18, comprising the additional steps of:

          pivotaly attaching each of the forming flaps (133) at a first end (133a) to a support, whereby a second end (133b) of each of the forming flaps (133) at least partly follows the associated half of the at least one pair of  
15        reciprocally movable sealing halves (190, 200).

          21. A method for sealing a package (19) according to claim 18, comprising an additional step of:

20        pivoting the forming flaps (133) from a first essentially vertical position to a second angled position in which the second end (133b) is in contact with a portion of each package (20) adjacent an open end (20a) thereof.

          22. A method for sealing a package (19) according to claim 20, comprising the additional steps of:

25        biasing each of the forming flaps (133), thereby pivoting it into its first essentially vertical position and keeping it in its first essentially vertical position when the associated sealing half of the at least one pair of reciprocally movable sealing halves (190, 200) is in its open position.

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